

**Article XVII.—TWO FOSSIL PHORIDÆ FROM THE MIOCENE SHALES OF FLÖRISSANT, COLORADO.**

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The occurrence of Diptera belonging to the family Phoridae in the fossil state has been recorded a number of times by various European workers, but hitherto none has been described from the American continent. Two species recently collected by Professor and Mrs. T. D. A. Cockerell at Florissant, Colorado, are therefore of considerable interest, and it is with great pleasure that I avail myself of Professor Cockerell's kind permission to describe them and point out their relationship to living forms.

In 1845 Berendt<sup>1</sup> noted the presence of *Phora* (*sensu lato*) in Baltic amber and five years later Loew at the close of his valuable paper on amber and its fauna<sup>2</sup> mentions that he has distinguished eleven species, none of which differ remarkably from the recent European members of the family. Unfortunately these were not described by him. More recently Helm includes the family in his enumeration of the amber fauna,<sup>3</sup> but likewise without any more detailed references.

The first attempts to specifically describe any fossil Phoridae are quite recent, and have been made by Meunier, who has carefully figured some species found in copal.<sup>4</sup>

Two of these, *Phora copalina*, and *P. ethiopica* undoubtedly belong to the genus *Aphiochæta* which is at the present time the most abundant genus of the family, both in species and individuals in all parts of the World. Neither seem to differ in any remarkable way from recent forms, except for the strong tibial cilia of the second species, which are, however, duplicated in a very few recent species not generically distinct from *Aphiochæta*.

A third species described by Meunier<sup>5</sup> from recent Madagascar copal is referred to *Phora*, but it also very probably belongs to *Aphiochæta*, to judge from the general type of wing venation, shortened costal vein, etc.

The present fossils from Florissant are referable to the recent genus

<sup>1</sup> Organische Reste im Bernstein. Vol. I, p. 57 (1845), Berlin.

<sup>2</sup> Ueber den Bernstein und die Bernsteinfauna. Progr. königl. Realsch. Meseritz, 1850, pp. 1-44.

<sup>3</sup> Beiträge zur Kenntniss der Insecten des Bernsteins. Schrift. Naturf. Gesellsch. Danzig, IX, pp. 220-231 (1896).

<sup>4</sup> Meunier, F. Nouvelles Recherches sur quelques Diptères et Hyménoptères du Copal Fossile, "Dit de Zanzibar." Rev. Sci. Bourbonnais et Centr. France, 1905, pp. 204-216.

<sup>5</sup> Sur quelques Diptères et une Hyménoptère du Copal Récent de Madagascar. Miscell. Entom., XLII, p. 6, Narbonne (1905).

*Phora* (*sensu stricto*) without the slightest doubt. In neither case are the wings preserved, but the wonderful preservation of the bristles on the body and legs makes generic reference easy.

***Phora cockerelli* sp. nov.**

Female. Length 4.5 mm. Body dark colored, with the pleuræ and legs brownish, although the posterior femora and tibiæ are more or less piceous. Antennæ brownish yellow, rounded; palpi apparently large and well-developed at the tips with the usual bristles which are very distinct but of only moderate size. Front shining and apparently rather long, its chaetotaxy not distinguishable. Thorax

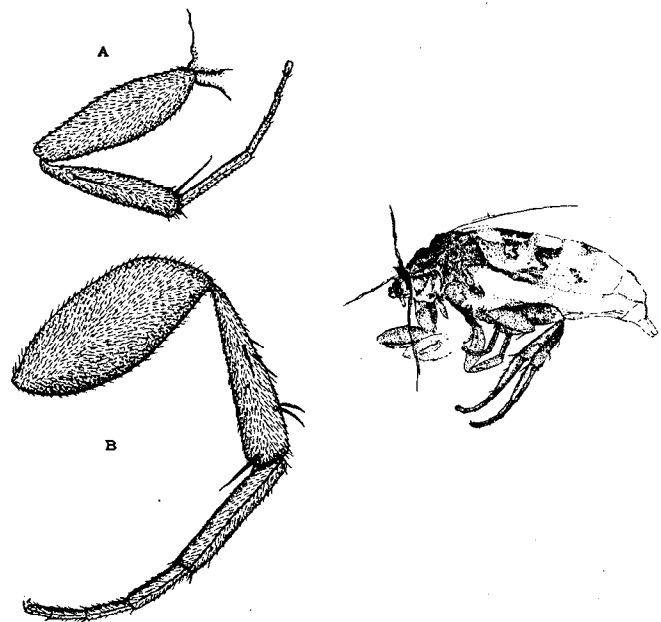


Fig. 1. *Phora cockerelli*, sp. nov. A. Anterior leg. B. Posterior leg.

shining, finely hairy. Abdomen of the usual tapering form, the second segment not at all lengthened. Venter pale and membranous as usual. Legs moderately stout for the genus *Phora*. Anterior tibiæ with a single rather small external bristle at the anterior third, followed by a series of smaller diminishing ones in a line to the tip, none of which are very much larger than the hairy vestiture of the tibia. Middle tibia with a single large external bristle at the basal third; one large and one very short apical spur. Posterior tibia with an external bristle at the extreme base (indicated in the specimen only by an unmistakable cicatrix on the surface); a cluster

of three at the basal third and a pair at the apical third; tip with one long and two short spurs. Tarsi normal, the hind metatarsus inwardly with the characteristic transverse rows of bristly hairs.

One specimen, from Florissant, Colorado (Prof. Cockerell's Station 17). Type in the collection of the American Museum of Natural History.

The present species is closely allied to several recent species, at least in the armature of the tibiæ. A careful examination reveals a trace of one wing where its base is superimposed upon the thorax, but the larger expanse is entirely obliterated.

***Phora laminarum* sp. nov.**

With the exception of the hind legs, the type of this species is so poorly preserved that it can scarcely be described. The length is about 5 mm. Color apparently brownish yellow, with the head and several basal patches on the abdomen darker. Both hind legs are, however, beautifully preserved and their structure serves to place the species very accurately. On the outer side of the tibia is a series of closely approximated transverse rows of short bristly hairs almost exactly similar to the arrangement seen in the recent North American species, *Phora multiseriata* Aldrich. At its tip are several spurs, and the metatarsus is also furnished inwardly with a number of long bristles. The antennæ are rounded but very poorly preserved. There is no trace of wings, but from the stout form of the species there can be no doubt that it was winged.

One specimen, collected by Mrs. W. P. Cockerell at Florissant, Colorado (Station 14). Type in the collection of the American Museum of Natural History.

The remarkable similarity which this shows to *P. multiseriata* suggests that its affinities are North American, although it is quite possible that it may depart radically from that species in venation or other characters not shown in the fossil.

Public Museum, Milwaukee, U. S. A.

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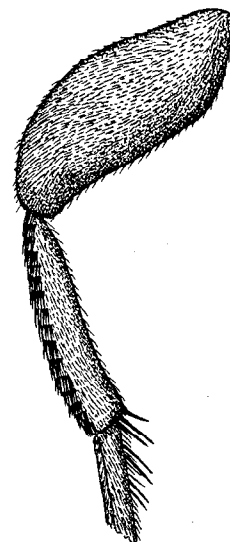


Fig. 2. *Phora laminarum*, sp. nov. Hind leg.